

REMARKS

Claims 1-18 are currently pending in this application. By this response to the non-final Office Action mailed on April 15, 2009, claims 5, 11, and 17 are amended. Support for the amendments is found in the specification, including the claims, as originally filed. No new matter is added. Applicants appreciate the allowance of claims 2, 4, 8, 10, 14, and 16. Favorable reconsideration of the application in light of the foregoing amendments and following comments is respectfully submitted.

I. Telephone Interview of March 9, 2009

Applicants thank Examiners Giardino and Shah for conducting a telephone interview with the undersigned, and the resulting issuance of a new non-final Office Action responsive to the issues discussed in the interview.

II. Allowed Claims

Applicants appreciate the allowance of claims 2, 4, 8, 10, 14, and 16. Page 10 of the Office Action included a statement of reasons for allowance. Although Applicants agree that the claims are patentable over the cited art, entry of the statement into the record should not necessarily be construed as any agreement with or acquiescence by Applicants in the particular reasoning set forth in the statement, particularly to the extent, if any, that the wording used in the statement may differ from the actual claim language and/or the otherwise proper interpretation of the claim language in view of the specification and prosecution history.

III. Rejections Under 35 U.S.C. §§ 102 and 103(a)

On page 2 of the Office Action, claims 6, 12, and 18 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,401,166 (Chiba). On page 4 of the Office Action, claims 1, 3, 7, 9, 13, and 15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chiba in view of U.S. Patent No. 6,591,327 (Briner). On page 7 of the Office Action, claims 5, 11, and 17 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Chiba in view of U.S. Patent No. 6,873,789 (Nakamura). Applicants respectfully traverse.

A. Claims 1, 7, and 13

Claim 1 recites, *inter alia*,

a plurality of **erasing blocks each comprising a first number of bytes which are physically erasable as a single unit;**
a partition management information region; and
a partition region, wherein . . .
the region secured between the terminal end of the partition management information region and the starting end of the partition region is larger than one of the erasing blocks and in a state where data is physically erased.

This application describes, with respect to nonlimiting embodiments of the above limitations, benefits realized by certain nonvolatile memory devices having a “region . . . in a state where data is physically erased” near “the starting end of the partition region.”

In the Amendment filed on September 9, 2008, Applicants noted that the 14-page “EMPTY REGION” shown in FIG. 4 is smaller than the 16-page erasing blocks disclosed by Chiba. In response, the most recent Office Action proposes a modification of Chiba in view of Briner, whereby the Chiba device is made erasable not in units of a “block . . . of about 8.03 K byte” (col. 5, lines 55-56), but instead a “page having a memory capacity of 528 byte” (col. 5, lines 50-51), of which there are 16 pages in a block. *See* Office Action, page 4 (equating “pages of a fixed size” with the recited “each block being a first size”). Page 5, lines 14-15 of the Office

Action asserts that FIG. 4 shows a 14-page empty region which is larger than the 1 page erasing unit in the modified device proposed by the Office Action.

However, the position asserted by the Office Action ignores that FIG. 4 shows a device in which the smallest erasable unit is a 16-page block, and that the size of the 14-page empty region (referred to as “a position adjusting region for coinciding a start position and end position of each of the clusters with the start position and end position of the block” (col. 2, lines 49-51)) is determined by the size of the erasable unit of the memory device. Because of this restriction for the FIG. 4 device, block 1 containing the master boot memory region (page 1) and partition boot memory region (page 16) must be padded with a 14-page empty region (pages 2-15) to ensure that the following clusters 1-1023 each have a starting point coinciding with the starting point of an erasing block and a length of an integral number of erasing blocks.

Chiba, col. 1, lines 25-57 explains problems that arose with foregoing approach to implementing a FAT file system on a flash memory, in which clusters were not aligned with erasing blocks. To solve these problems, Chiba discloses a device in which “the minimum unit and position of a file at the time of data read-out and write-in become the same size and position of the block of the flash memory 1” (col. 13, lines 45-47). By aligning clusters with the beginning of erasing blocks, “data erasing and write-in processing can be carried out in units of one block. Thus, the necessity of saving other data for data write-in is eliminated, so that the data erasing and write-in processing can be carried out rapidly” (col. 2, lines 40-44). To accomplish this, col. 8, lines 35-37 expressly states that “[t]he empty region is provided for coinciding a head and end of the block which is a physical unit with those of a cluster which is a logical unit managed by the OS when the memory region is divided to a plurality of clusters.” For the device

shown in Chiba, FIG. 4, a 14-page empty region is needed to align the clusters with erasing blocks.

The modification proposed by the Office Action would accordingly change what is shown in FIG. 4. Specifically, if the Chiba device were modified as proposed by the Office Action, such that the smallest erasable unit was a page, no empty region would be required. In the modified device proposed by the Office Action, the partition boot memory region would be located at page 2, and cluster 1 would begin at page 3, and the device would still obtain “coinciding a head and end of the block which is a physical unit with those of a cluster which is a logical unit managed by the OS,” as disclosed at Chiba, col. 8, lines 35-37. There would be no reason for an unused empty region to be disposed between the master boot memory region and partition boot memory region. It can also be appreciated that, for example, were the Chiba device instead modified to have a smaller block size of 4 pages, the empty region in block 1 would simply be reduced to 2 pages, and remain smaller than an erasing block. *See, e.g.*, Chiba, claim 3 (in which “said first block includes a first page as a master boot memory region, a plurality of empty pages following said master boot memory region, and a last page as a partition boot memory region”). Applicants also note that, although not shown in FIG. 4, Chiba already contemplates erasable units smaller than the cluster size, as Chiba, col. 2, lines 45-46 states “[a]lthough ordinarily, the cluster has a single block, it may be formed of a plurality of the blocks.”

Thus, the modification of Chiba proposed by the Office Action does not succeed in demonstrating that the last paragraph of claim 1, in which “the region . . . is larger than the first size,” would have been obvious. Accordingly, Applicants respectfully request withdrawal of the

rejection of claim 1. Likewise, at least the last paragraphs of claims 7 and 13 are nonobvious in view of the cited art, and withdrawal of their rejection is respectfully requested.

B. Claims 3, 9, and 15

Claim 3 recites, *inter alia*, that “a region which is not used for the recording is larger than the first size and is included in the recording format of the file system.” Claims 9 and 15 each recite, *inter alia*, that “a region which is not used for the recording is larger than the first size and is set in a recording format of the file system in the recording medium of non-volatile semiconductor.” For much the same reasons discussed above with respect to claim 1, the cited art does not disclose, suggest, or otherwise render obvious the above limitations. Thus, Applicants respectfully request withdrawal of the rejection of claims 3, 9, and 15.

C. Claims 5, 11, and 17

Claims 5, 11, and 17 each recite, *inter alia*, “a predetermined region larger than the first size included in the partition is secured prior to a starting end of the space bit map region.” For much the same reasons discussed above with respect to claim 1, the cited art does not disclose, suggest, or otherwise render obvious the above limitations. Thus, Applicants respectfully request withdrawal of the rejection of claims 5, 11, and 17.

D. Claims 6, 12, and 18

Claim 6 recites, *inter alia*,

the file allocation table region indicates that a continuous series of at least three clusters each has a state value indicating a cluster is not to be written to because it is a defective cluster, a reserved cluster, or an already-used cluster; and
a region of the user data region corresponding to the continuous series of at least three clusters is physically erased.

The Office Action asserts that the above limitations are anticipated by Chiba. Citing to step S504 of FIG. 11 and col. 14, lines 3-4, the Office Action asserts that “if three continuous

clusters are used, the file allocation table region would indicate that a continuous series of at least three clusters are used” (Office Action, page 3, lines 12-14).

However, the position taken by the Office Action is inconsistent with the recitation that the “region of the user data region corresponding to the continuous series of at least three clusters is physically erased.” If a cluster is used, it contains data, and is no longer in an erased state. Thus, it appears that the use of the FAT file system disclosed by Chiba does not satisfy both of the last paragraphs of claim 6. Accordingly, claim 6 is not anticipated by Chiba, and Applicants respectfully request withdrawal of its rejection. Likewise, the last two paragraphs of each of claims 12 and 18 are not anticipated by Chiba, and withdrawal of their rejection is requested.

IV. Conclusion

Accordingly, it is urged that the application, as now amended, is in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner’s amendment, Examiner is requested to call the undersigned attorney at the telephone number shown below.

Application No.: 10/585,643

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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